
INITIAL MANAGEMENT OF CLOSED HEAD INJURY IN ADULTS

PURPOSE

The purpose of this policy is to ensure that clinicians utilise *'The Initial Management of Closed Head Injury in Adults'* clinical practice guidelines to assist in informed medical decision making.

The guidelines are not intended to replace clinical judgement. It is recognised that clinical management may need to be modified, based on the patient's presentation and co-morbidities. Any deviation must be documented.

The guidelines are intended to assist clinicians across NSW in delivering optimal care for patients with closed head injuries.

Note: These guidelines are intended for use in adults only.

For children, refer to PD2005_391 *Children and Infants with Head Injury - Acute Management* at

http://www.health.nsw.gov.au/policies/PD/2005/PD2005_391.html

The use of the guidelines is Mandatory

BACKGROUND

- The NSW Institute of Trauma and Injury Management developed – Adult Trauma Clinical Practice Guidelines “Initial Management of Closed Head Injury in Adults” with the aim to assist clinicians by providing a general guide enabling informed decision making by clinicians in managing closed head injuries.
- NSW Health requested the Greater Metropolitan Clinical Taskforce (GMCT) – Neurosurgical group to review the administration of analgesia and the use of anti-convulsant therapy in the treatment of mild closed head injury, with a view to incorporating the guidelines in the *“Initial Management of Closed Health Injuries in Adults”*.
- Greater Metropolitan Clinical Taskforce - Neurosurgical Group have completed the review and provided the guidelines, which are attached. These analgesia guidelines and will be incorporated in the next edition.

ROLES AND RESPONSIBILITIES

The Chief Executive is responsible for:

- Establishing structures to ensure appropriate implementation of this policy.
- Ensuring all line managers clearly understand they are accountable for the effective implementation of the processes outlined in this policy

The Director of Clinical Operations is responsible for:

- Successful implementation of the policy within the organisation

Title: Initial Management of Closed Head Injury in Adults

Hospital or Facility and/or Directors of Emergency Departments are responsible for:

- Ensuring that all steps outlined in the policy are implemented successfully in the department/hospital.
- Monitoring the compliance of the policy.

Clinicians are responsible for:

- Ensuring that the Guidelines are used when indicated.
- Documenting in the medical record any decision to deviate from the guidelines.

Professor Debora Picone AM
Director-General

Guidelines for the administration of analgesia and the use of anti-convulsant therapy in the treatment of mild closed head injury

Purpose	<p>To provide clinicians with analgesia guidelines to be used in conjunction with the NSW Institute of Trauma and Injury Management Adult Trauma Clinical Practice Guidelines "<i>Initial Management of Closed Injury in Adults</i>" (see links at the end of this document).</p> <p>The guidelines are not intended to replace clinical judgement. It is recognised that clinical management may need to be modified, based on the patient's presentation and co-morbidities. Any deviation must be documented.</p> <p>The guidelines are intended to assist clinicians across NSW in delivering optimal care for patients with closed head injuries.</p>
Author	Greater Metropolitan Clinical Taskforce (GMCT) – Neurosurgery Network.
Acknowledgements	Royal North Shore Hospital, 'Analgesia Guideline for Neurosurgical Patients with Intracranial Surgery or Head Injury'; Royal Prince Alfred Hospital, 'Analgesia Guidelines for Cranial Neurosurgery'; Institute of Trauma and Injury Management (ITIM), 'Adult Trauma Clinical Practice Guidelines: Initial Management of Closed Head Injury in Adults

Analgesia

Discussion of the administration of analgesia is in the context of mild head injury.

Mild head injury is:

A patient with an initial GCS of 14-15 on arrival at hospital following acute blunt head trauma (with or without a defined history of loss of consciousness or amnesia).

Typical characteristics

- ◆ direct blow to the head or acceleration / deceleration injury
- ◆ transient loss of consciousness or amnesia
- ◆ transient abnormal alertness, behaviour or cognition
- ◆ neurosurgical intervention rare
- ◆ post concussion symptoms common
- ◆ long term functional outcome good

(Source: Adult Trauma Clinical Practice Guidelines, ITIM, 2007)

Aim of analgesia in the head injured patient

The intention is to make patients comfortable. Administration of analgesia for headache in neurosurgical patients aims at pain control and not necessarily pain abolition.

1. Non Opioid Analgesia

Analgesia should **firstly**, commence with the administration of paracetamol, up to but not exceeding 4gms/day, 500mg - 1gm 4 - 6 hourly. Refer to: NSW Department of Health Policy Directive 'Paracetamol Use', Document Number PD2006_004.

"All medication orders for paracetamol, including PRN orders, must specify a maximum number of doses per day. Each dose must be expressed in milligrams(mg) or grams (g) per dose. Doses of liquid preparations must not be expressed using millilitres (mL) per dose, because of the potential for confusion with differing concentrations.

All paracetamol orders should be medically reviewed after 48 hours. This review should give consideration to monitoring of hepatic transaminase levels and INR." *(Document Number PD2006_004)*

2. Opioid Analgesia

If paracetamol is ineffective or inadequate codeine phosphate can be administered 30 - 60mg (maximum) 4th hourly to a daily maximum of 240mg. Codeine phosphate can be used in combination with paracetamol, paracetamol 500mg/codeine 30mg.

6 - 10% of Caucasians and 1 - 2% of Asians lack the enzyme CYP2D6 (necessary for metabolism of codeine to morphine); these people are therefore unlikely to obtain analgesia with codeine (*Australian Medicines Handbook 2007*)

With the introduction of an opioid analgesic care must be taken to differentiate between signs of sedation verses altered level of consciousness related to a (possible) deterioration in condition.

The most serious adverse effect of opioids is respiratory depression, this can be determined by the use of a sedation score. **A decreased respiratory rate is a late and unreliable indicator of respiratory depression.**

Example sedation score:

Sedation Score:

- 0 - wide awake
- 1 - easy to rouse
- 2 - constantly drowsy, easy to rouse, but cannot stay awake
- 3 - somnolent, difficult to rouse

Aim to keep the sedation score < 2, a score of 2 represents early respiratory depression. (*Australian Medicines Handbook 2007*)

In the event a patient does not respond to the administration of codeine, a 5mg dose of oxycodone could be trialled, a maximum of 4-6 hourly. As oxycodone is a synthetic opioid the same potential side effects of opioid administration must be considered.

Seniority of prescriber

When narcotic analgesic administration is considered for the treatment of **mild** head injury (in an institution without a Neurosurgery service) the Admitting Officer should be notified/consulted;

When narcotic analgesic administration is considered for the treatment of **mild** head injury (in an institution with a Neurosurgery service) the admitting team Registrar should be notified/consulted.

Narcotic analgesia **must not** be administered if the patient:

- has a decreased level of consciousness

- has an abnormal head CT scan, with the exclusion of patient who have been transferred to the Intensive Care Unit or a High Dependency Area

Administration of Analgesia in the Patient with a Mild Head Injury

All narcotic analgesia must be prescribed as a prn order on the PRN Medication Chart.

Orders on Regular medication Charts are not to be used

Anti-convulsant therapy

Discussion of the administration of anti-convulsant therapy is in the context of the first 1 - 7 days following **mild** head injury.

It must be noted that there is no Level I evidence to support anti-convulsant administration. "Anti-convulsants are indicated to decrease the incidence of early post traumatic seizures (PTS) (within 7 days of injury). However, early PTS is not associated with worse outcomes." (*Journal of Neurotrauma, Vol 24, Supplement 1, 2007*)

Recommendation

If seizure risk factors exist within the first week following a closed head injury then prophylactic phenytoin (4-5mg/kg/day up to 600mg/day) can be administered. If there is a past history of sensitivity to phenytoin then valproate 20-30mg/kg/day up to within a range of 1000 - 2000 mg/day) should be used.

Risk Factors

- depressed skull fracture;
- intracerebral haematoma or contusion on CT;
- Sub or Extradural haematoma on CT;
- post traumatic seizure;
- - post history of epilepsy.

For additional information regarding the treatment of closed head injury in the adult refer to ITIM guidelines.

Links to the guidelines

NSW Institute of Trauma and Injury Management Adult Trauma Clinical Practice Guidelines "*Initial Management of Closed Injury in Adults*" have been split into two PDFS, as follows:

[Guidelines - Part 1](#) - PDF [971Kb]

[Guidelines - Part 2](#) - Evidence Tables - PDF [1000Kb]